Atty. Dkt. No. DALHO1340-1
(028614-1303)

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A composition for the stimulation of protection against infection by at least one pathogen, said composition comprising a live commensal oral organism genetically modified so as to express a plurality of immunogenic fragments of said pathogen.

2. (Original) A composition according to claim 1 wherein said plurality of immunogenic fragments are derived from the same mucosal pathogen.

3. (Original) A composition according to claim 1 wherein said plurality of immunogenic fragments are derived from more than one pathogen.

4. (Original) A composition according to claim 1 wherein said pathogen is *Bordetella pertussis*, Respiratory Syncytial Virus (RSV), poliovirus, *Mycoplasma pneumoniae*, meningococcus, pneumococcus, rotavirus, influenza, parainfluenza, *Corynebacterium diphtheriae*, *Clostridium tetani*, hepatitis B virus, Neisseria gonorrhoeae, non-typeable Haemophilus influenzae, Chlamydia pneumoniae, Chlamydia trachomatis, Moraxella catarrhalis, or a combination of two or more thereof.

5. (Original) A composition according to claim 1 wherein said pathogen is *Bordetella pertussis*.

6. (Original) A composition according to claim 5 wherein said immunogenic fragment is derived from the pertussis toxin.

7. (Original) A composition according to claim 6 wherein said immunogenic fragment of the pertussis toxin comprises the N-terminal 179 amino acids of the S1 subunit of the pertussis toxin.

8. (Original) A composition according to claim 5 wherein said immunogenic fragment is derived from one or more of the pertussis toxin, filamentous hemagglutinin, pertactin and fimbriae.

9. (Original) A composition according to claim 1 wherein said commensal oral organism is a *Streptococcus*.

10. (Original) A composition according to claim 9 wherein said commensal oral organism is *Streptococcus gordonii*, *Streptococcus salivarius* or *Streptococcus mitis*.

11. (Original) A composition according to claim 10 wherein said genetic modification comprises transformation of said *Streptococcus gordonii* with a vector encoding the surface protein antigen P1 of *Streptococcus mutans*, and wherein the sequence encoding said surface protein antigen is modified by insertion of sequence encoding said immunogenic fragment therein.

12. (Original) A composition according to claim 1 wherein said organism is further modified so as to express at least one mucosal adjuvant.

13. (Original) A composition according to claim 1 wherein said composition further comprises at least one immunological adjuvant.

14. (Original) A method for prophylactically treating a host against infection by a pathogen, said method comprising orally and/or intranasally administering to said host an effective amount of a composition according to claim 1.

15. (Original) A method according to claim 14 wherein said plurality of immunogenic fragments are derived from the same pathogen.

16. (Original) A method according to claim 14 wherein said plurality of immunogenic fragments are derived from more than one pathogen.

17. (Original) A method according to claim 14 wherein said pathogen is *Bordetella pertussis*, Respiratory Syncytial Virus, poliovirus, *Mycoplasma pneumoniae*, meningococcus, pneumococcus, rotavirus, influenza, parainfluenza, *Corynebacterium diphtheriae, Clostridium tetani*, Neisseria gonorrhoeae, non-typeable Haemophilus influenzae, Chlamydia pneumoniae, Chlamydia trachomatis, Moraxella catarrhalis, hepatitis B virus, or a combination of two or more thereof.

18. (Original) A method according to claim 17 wherein said pathogen is *Bordetella pertussis*.

19. (Original) A method according to claim 18 wherein said immunogenic fragment is derived from the pertussis toxin.

20. (Original) A method according to claim 19 wherein said immunogenic fragment of the pertussis toxin comprises the N-terminal 179 amino acids of the S1 subunit of the pertussis toxin.

21. (Original) A method according to claim 18 wherein said immunogenic fragment is derived from one or more of the pertussis toxin, filamentous hemagglutinin, pertactin and fimbriae.

22. (Original) A method according to claim 14 wherein said commensal oral organism is *Streptococcus*.

23. (Original) A method according to claim 14 wherein said organism is further modified so as to express at least one mucosal adjuvant.

24. (Original) A method according to claim 14 wherein said composition further comprises at least one immunological adjuvant.

25. (Original) A method for chronic immunization of a host against infection by a pathogen, said method comprising orally and/or intranasally administering to said host an effective amount of a composition according to claim 1.

26. (Original) A method according to claim 25 wherein said plurality of immunogenic fragments are derived from the same pathogen.

27. (Original) A method according to claim 25 wherein said plurality of immunogenic fragments are derived from more than one pathogen.

28. (Original) A method according to claim 25 wherein said pathogen is *Bordetella pertussis*, Respiratory Syncytial Virus, poliovirus, *Mycoplasma pneumoniae*, meningococcus, pneumococcus, rotavirus, influenza, parainfluenza, *Corynebacterium diphtheriae*, *Clostridium tetani*, Neisseria gonorrhoeae, non-typeable Haemophilus influenzae, Chlamydia pneumoniae, Chlamydia trachomatis, Moraxella catarrhalis, hepatitis B virus, or a combination of two or more thereof.

29. (Original) A method according to claim 28 wherein said pathogen is *Bordetella pertussis*.

30. (Original) A method according to claim 29 wherein said immunogenic fragment is derived from the pertussis toxin.

31. (Original) A method according to claim 30 wherein said immunogenic fragment of the pertussis toxin comprises the N-terminal 179 amino acids of the S1 subunit of the pertussis toxin.

32. (Original) A method according to claim 29 wherein said immunogenic fragment is derived from one or more of the pertussis toxin, filamentous hemagglutinin, pertactin and fimbriae.

33. (Original) A method according to claim 25 wherein said commensal oral organism is *Streptococcus*.

34. (Original) A method according to claim 25 wherein said organism is further modified so as to express at least one mucosal adjuvant.

35. (Original) A method according to claim 25 wherein said composition further comprises at least one immunological adjuvant.